

Coding: Attempt review | REC-CIS

4–5 minutes

Status	Finished
Started	Monday, 13 January 2025, 4:17 PM
Completed	Monday, 13 January 2025, 4:47 PM
Duration	30 mins 2 secs

Question 1

Correct

Marked out of 1.00

Question text

A binary number is a combination of 1s and 0s. Its n^{th} least significant digit is the n^{th} digit starting from the right starting with 1.

Given a decimal number, convert it to binary and determine the value of the the 4^{th} least significant digit.

Example number

= 23

· Convert the decimal number 23 to binary number: $23^{10} = 2^4 + 2^2 + 2^1 + 2^0 = (10111)_2$.

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The value of the 4th index from the right in the binary representation is 0.

Function Description

Complete the function `fourthBit` in the editor below. `fourthBit` has the following parameter(s):

`int number`: a decimal integer

Returns: `int`: an integer 0 or 1 matching the 4th least significant digit in the binary representation of `number`.

Constraints

$$0 \leq \text{number} < 2^{31}$$

Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function.

The only line contains an integer, `number`.

Sample Case 0

Sample Input 0

STDIN Function

32 → `number` = 32

Sample Output 0

0

Explanation 0

Convert the decimal number 32 to binary number: $32_{10} = (100000)_2$.

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- The value of the 4th index from the right in the binary representation is 0.

Sample Case 1

Sample Input 1

STDIN Function

77 → number = 77

Sample Output 1

1

Explanation 1

- Convert the decimal number 77 to binary number: $77_{10} = (1001101)_2$.
- The value of the 4th index from the right in the binary representation is 1.

Answer:(penalty regime: 0 %)

```
1 //
2 * Complete the 'fourthBit' function below.
3 *
4 * The function is expected to return an INTEGER.
5 * The function accepts INTEGER number as parameter.
6 */
7
8 int fourthBit(int number)
9 {
10     int i=0;
11     int tmp=number;
12     while(tmp>0){
13         tmp/=2;
14         i++;
15     }
16     int arr[i]; //bin=0;
17     tmp=number;
18
19     for(int j=0; j<i; j++){
20         arr[j]=tmp%2;
21         tmp/=2;
22     }
23     return arr[3];
24 }
25
```

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Feedback

	Test	Expected	Got	
	<code>printf("%d", fourthBit(32))</code>	0	0	
	<code>printf("%d", fourthBit(77))</code>	1	1	

Passed all tests!

Question 2

Correct

Marked out of 1.00

Question text

Determine the factors of a number (i.e., all positive integer values that evenly divide into a number) and then return the p^{th} element of the list, sorted ascending. If there is no p^{th} element, return 0.

Example $n = 20$ $p = 3$

The factors of 20 in ascending order are {1, 2, 4, 5, 10, 20}. Using 1-based indexing, if $p = 3$, then 4 is returned. If $p > 6$, 0 would be returned.

Function Description

Complete the function `pthFactor` in the editor

below. `pthFactor` has the following parameter(s):

`int n`: the integer whose factors are to be found

`int p`: the index of the factor to be returned

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Returns: int: the

long integer

value of the p^{th} integer factor of n or, if there is

no factor at that index, then 0 is returned

Constraints

$$1 \leq n \leq 10^{15}$$

$$1 \leq p \leq 10^9$$

Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function. The first line contains an integer n , the number to factor.

The second line contains an integer p , the 1-based index of the factor to return.

Sample Case 0 Sample Input 0

STDIN Function

----- 10

→ $n = 10$

3 → $p = 3$

Sample Output 0

5

Explanation 0 Factoring $n = 10$ results in $\{1, 2, 5, 10\}$. Return the p th factor, 5, as the answer.

Sample Case 1 Sample Input 1

STDIN Function

----- 10

→ $n = 10$

240701008

5 → p = 5

Sample Output 1

0

Explanation 1

Factoring $n = 10$ results in $\{1, 2, 5, 10\}$. There are only 4 factors and $p = 5$, therefore 0 is returned as the answer.

Sample Case 2 Sample Input 2

STDIN Function

1 → n = 1

1 → p = 1

Sample Output 2

1

Explanation 2

Factoring $n = 1$ results in $\{1\}$. The $p = 1$ st factor of 1 is returned as the answer.

Answer:(penalty regime: 0 %)

```

1  /*
2  * Complete the 'pthFactor' function below.
3  *
4  * The function is expected to return a LONG_INTEGER.
5  * The function accepts following parameters:
6  * 1. LONG_INTEGER n
7  * 2. LONG_INTEGER p
8  */
9  //include<stdlib.h>
10 long pthFactor(long n, long p)
11 {
12     int i=0;
13     for(long j=1;j<=n;j++){
14         if(n%j==0){
15             i++;
16             if(i==p){
17                 return j;
18             }
19         }
20     }
21     return 0;
22 }

```

Feedback

	Test	Expected	Got	
	printf("%ld", pthFactor(10, 3))	5	5	
	Test	Expected	Got	
	printf("%ld", pthFactor(10, 5))	0	0	
	printf("%ld", pthFactor(1, 1))	1	1	

Passed all tests!